



# OPTIMIZING EDUCATIONAL MESSAGES TO IMPROVE PATIENT OUTCOMES

**Joan M Mangan, PhD MST**  
Centers for Disease Control and  
Prevention, Division of  
Tuberculosis Elimination

# OUTLINE

- TB myths and misperceptions, the impact on care delivery
- Best practices for health education messaging
- Types of message appeals
- Acknowledging and addressing myths and misperceptions
- Development of messages to address misperceptions surrounding the BCG vaccine



# WHY DO WE NEED TO ADDRESS TB MYTHS AND MISPERCEPTIONS?

When individuals are provided information that appears inconsistent with existing beliefs or behaviors, the resulting dissonance may lead some to:

- Purposefully avoid or ignore new information
- Downplay importance of the information
- Add interpretations consistent with existing beliefs, behaviors, or personal characteristics

These responses enable “biased optimism” – belief that a person will stay well, despite their risk.

# “BEST PRACTICES” FOR HEALTH EDUCATION MESSAGING

To achieve understanding and acceptance of educational information:

1. Keep messages short.
2. Minimal use of technical language or jargon.
3. Group information into chunks, present chronologically.
4. Specify the action you want a person to carry out.
5. Personalize! Make the information relevant to the patient.
6. Repeat the most important part of the message.

## **Economic**

Without the complete treatment needed to be cured, you will become sick again and again – how will you work?

## **Family-driven**

Complete treatment for them.

## **Psychological**

You have some control, do not let this disease ruin your life.

## **Cultural Beliefs , Misperceptions**



**CAPTURING A PATIENT'S ATTENTION**

**Types of Appeals**

# TYPE OF APPEAL

To capture patients' attention, you can:

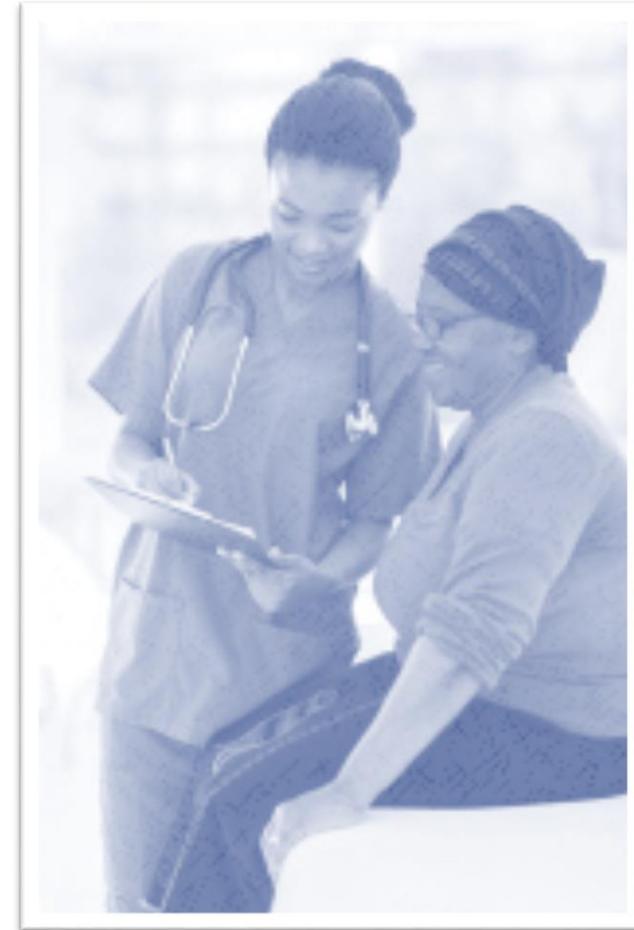
- Scare them
- Make them feel good / better
- Tug at their hearts
- Give them straight facts



# TYPE OF APPEAL

## What works best?

- Depends on patients' preferences
- What you are asking patients to do
- How you use the appeal when asking a patient to do something
  - Positive vs. Threat Appeals



# THREAT (OR FEAR) APPEALS (1)

Effective with 2 groups

- “Copers”
  - People who are not anxious by nature
- “Sensation Seekers”
  - Certain youth

Best used when exposure to the message is voluntary

- For example: A brochure at the library, rather than Health Dept. staff approaching a person in the course of a contact investigation

# THREAT (OR FEAR) APPEALS

(2)

To be effective, a threat appeal should include:

- A compelling threat of physical or social harm
- Evidence that the audience is personally vulnerable to the threat
- Solutions that are both easy to perform (person must believe they have the ability to take the action) and effective (taking action will eliminate the threat)

In general, the effectiveness of threat appeals is widely debated



# POSITIVE EMOTIONAL APPEALS

Illustrate the benefits patients will gain when they follow recommendations made.

## Research indicates:

- Messages that present a major benefit, but do not address any drawbacks tend to be most appropriate when an audience is already in favor of recommended actions.
- Messages that present a major benefit and directly address any major drawbacks work best when people are not favorably pre-disposed towards recommended actions.

# HOW MIGHT YOU PROVIDE A POSITIVE EMOTIONAL APPEAL IN RESPONSE TO THE MISPERCEPTION BELOW?

Treatment is complete once symptoms  
subside.



# EXAMPLE: POSITIVE EMOTIONAL APPEAL

In the past, patients have told me that they stopped taking their TB medicine once they felt better.

It is important to know, to be cured of TB – medication must be taken for at least 6 months.

Once the symptoms go away, many people do not want to stay on meds:

- They feel better;
- Takes time away from day to get meds;
- Some people will have side effects from the medication, a queasy stomach or a tingling feeling in hands or feet.

However, to remove all the TB germs from your body – so you do not become sick again and so you can care for your family - Your treatment will take 6 months to complete. You must come to the health dept. every Mon, Tues, Wed...

**Acknowledge  
Misperception  
The Benefit  
& Action**

**Drawbacks**

**Quantify Risk  
Remain  
Credible**

**Personalize  
Benefit,  
Repeat &  
Specify Action**



# CONVERSATIONS STARTERS

Acknowledging and  
Addressing Beliefs  
and Misperceptions



When acknowledging a belief, do not spend a lot of time focusing on the belief a person may report.

Emphasize what is true rather than what is false.

### **Why?**

- Studies have demonstrated the “fact and myth” format used in many public information campaigns run the risk of spreading misinformation in an attempt to discredit it.

## EXAMPLES OF CONVERSATION STARTERS:

### ACKNOWLEDGING

(1)

You might have questions whether you really need to come back to have these tests. Some people say only those who smoke cigarettes, drink a lot of alcohol or work in dusty environments get TB.

You do none of these things.

However, \_\_\_\_\_...

Addresses Logical Non-Adherence / Rejection of Medical  
Recommendations

# EXAMPLES OF CONVERSATION STARTERS:

## ACKNOWLEDGING

(2)

It is understandable that you don't want others to know about your illness, because many people do not know exactly how TB is spread from one person to another ...

Addresses Causes for Anxiety / Distress  
Etiology/Transmission

## EXAMPLES OF CONVERSATION STARTERS: ACKNOWLEDGING

(3)

When a person is diagnosed with TB, it can be overwhelming. Some people are embarrassed. Others do not feel comfortable asking questions of doctors and nurses. Do not be embarrassed. I want you to know I have cared for many good people with this illness. Also, I want to be sure I answer any questions you might have. Let's talk. In the past, what have you heard people say about TB?

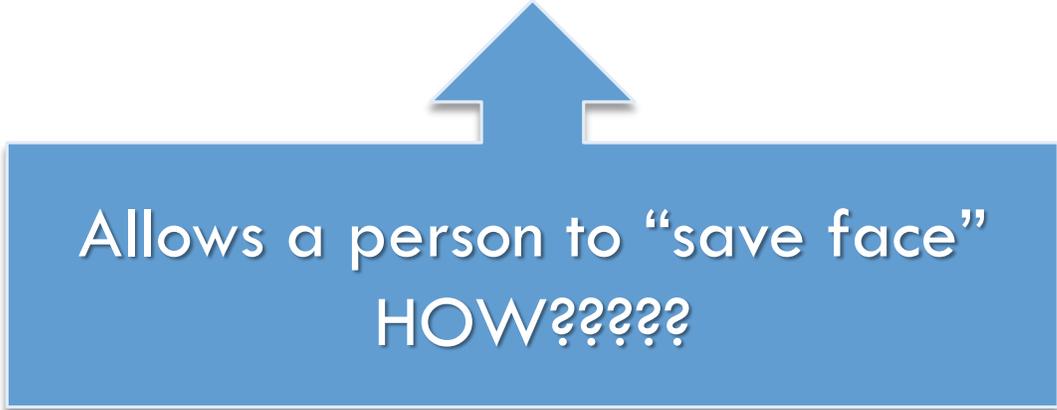
Encourages a person who does not ask questions or discuss concerns due to embarrassment, lack of awareness that current understanding is not accurate, or as a form of respect.

# EXAMPLES OF CONVERSATION STARTERS

## EMPHASIZING WHAT IS TRUE

Some people think TB is spread by shaking hands.

Although some diseases, like colds, are spread this way, we know TB is spread by coughing, sneezing, or talking.



Allows a person to “save face”  
HOW?????

# EXAMPLES OF CONVERSATION STARTERS

## EMPHASIZING WHAT IS TRUE

Many people believe TB passes through a family because the disease is inherited.

TB is caused by a germ.

When someone has TB in the lungs, they cough the germs into the air.

Someone else in the family can breathe in the TB germs and become infected and then sick.

## EXAMPLES OF CONVERSATION STARTERS

### EMPHASIZING WHAT IS TRUE

**Quick Exercise: Complete the statement to modify the following explanatory model for illness ...**

**“TB is caused by poor nutrition.”**



**Let's talk.**  
**In a number of countries,**  
**people think that TB is caused**  
**by being poor and not eating**  
**well but this is not correct...**

# EXAMPLES OF CONVERSATION STARTERS

## EMPHASIZING WHAT IS TRUE



Let's talk.

In a number of countries, people think that **TB is caused by being poor and not eating well** but this is not correct...

### **A possible response:**

Not eating good food can weaken the body. When the body is weak, it is easier to become sick with diseases like TB.

The cause of TB is a germ.

# PICTURE OF CLIENT ... I AM HEALTHY I DO NOT NEED TREATMENT

Example: Acknowledge and Emphasize + “Best Practices”

# PUTTING IT ALL TOGETHER

ACKNOWLEDGE, EMPHASIZE WHAT IS TRUE, & “BEST PRACTICES”



“I am healthy, I do not need treatment”

I understand a diagnosis of LTBI is upsetting. Especially when you are in good health and have rarely been sick.

When people breathe in the germs that cause TB, the germs can stay in the body for years and not cause any signs of being sick.

As people grow older, the immune system that kept them healthy becomes weaker. When the immune system weakens, the TB germs can begin to grow.

The body will try to fight back, but for some people the TB germs win and cause a person to become sick.

You can win the fight now and avoid becoming sick in the future. We can give you medicine that will clear the TB germs from your body.

We are going to start with a combination of 2 medicines. You will take these 1 day a week for 12 weeks.....

**Acknowledge  
Misperception**

**Chunk information  
& present  
chronologically**

**Quantify Risk  
Remain  
Credible**

**Repeat important  
parts of the message**

**Personalize  
Benefit  
Psychological "Control"**

**Specify Action**

**Short / Avoids Jargon**

**Missing Drawbacks**



**Who has had clients refuse TB testing  
or treatment because of a prior BCG  
vaccination?**

**Show of hands**

# MISCONCEPTIONS SURROUNDING BACILLE CALMETTE–GUÉRIN (BCG) (1)

- Currently, the only medically available TB vaccine
- Distributed since the 1920s
- More than 3 billion persons vaccinated worldwide

E.M. Agger, P. Andersen, A novel TB vaccine; towards a strategy based on our understanding of BCG failure. *Vaccine* 21 (2002) 7–14



Albert Calmette and Camille Guérin

# MISCONCEPTIONS SURROUNDING BCG (2)

A number of countries employ large-scale vaccination campaigns (including BCG) to control infectious diseases

- Campaigns are supported by mass media promotions
- Extol the benefits of vaccination
- Include appeals to parents to ensure their children's health

# MISCONCEPTIONS SURROUNDING BCG (3)

Whereas these campaigns ensure high vaccination rates, they may also contribute to three common misconceptions:

- The BCG vaccine protects a person from becoming sick with TB throughout their entire life.
- A “positive” TB screening test result is caused by having been vaccinated with BCG, not from TB infection.
- If BCG vaccinated, treatment for TB infection is not necessary.

McEwen, M. M., & Boyle, J. S. (2007). Resistance, health, and latent tuberculosis infection: Mexican immigrants at the U.S.-Mexico border. *Research and Theory for Nursing Practice*, 21(3), 185–197.

Poss JE. The meanings of tuberculosis for Mexican migrant farm workers in the United States. *Soc Sci Med*. 1998 Jul; 47(2):195-202.

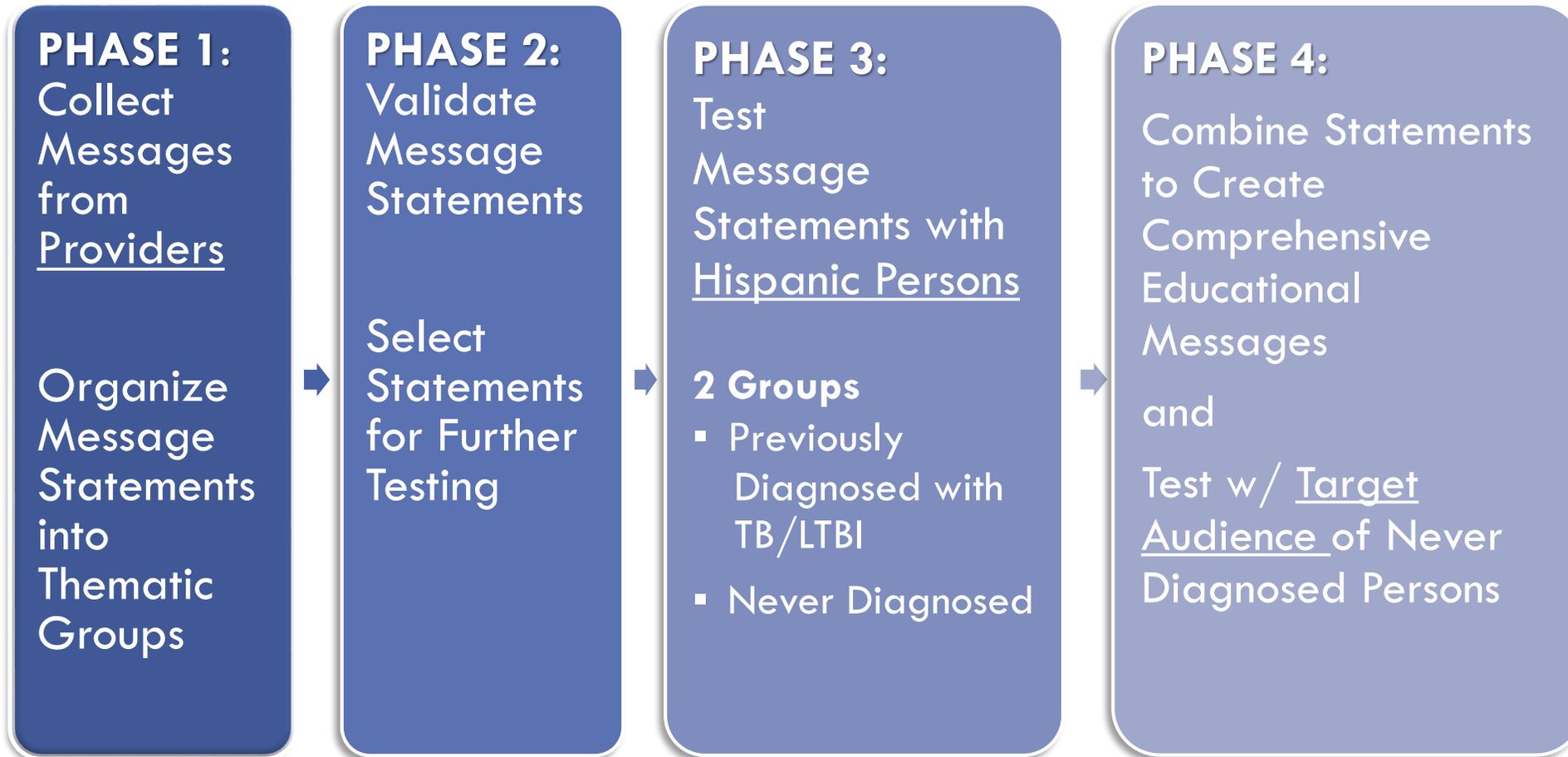
# PROJECT AIM



Discern salient messages to mitigate the dissonance Hispanic persons may experience relative to having been vaccinated with BCG and subsequently being informed they should be tested and/or treated for TB infection.

This project was supported by a Social Behavioral Research Grant (SB-160793-N) from the American Lung Association and the American Lung Association of the Southeast

# PROJECT OVERVIEW



# PHASE 1

Staff (n=60) from 5 TB programs

- Reviewed 3 common BCG misperceptions
- Transcribed messages they have used to persuade BCG vaccinated TB suspects and contacts to undergo TB testing and treatment

Investigators

- Conducted a systematic analysis of messages
  - Identified messages/themes repeated across the 3 misperceptions
  - Organized statements into 7 thematic message groups

## 7 Thematic Message Groups from Staff Messages

### 1. In general, why BCG is given

- Where the vaccine is used
- Why children are given the vaccine
- Who is given the vaccine

### 2. BCG helps to decrease the risk of developing severe forms of TB

### 3. Why the vaccine is not completely effective / protection wanes

### 4. Evidence the vaccine's protection wanes

- Incidence of TB around the world
- Testing outcomes
- The “Clinical Picture” (signs and symptoms of illness)

### 5. Reasons for getting tested for TB

- The vaccine's limitations
- What you gain from being tested
- Know your test results
- What you can lose from not being tested

### 6. The TB testing process and test results

### 7. Treatment

# PHASE 2

All staff message statements, in each thematic group, reviewed by TB experts

- Deleted inaccurate messages
- Edited to improve reading ease / comprehensibility
- Established content validity

Staff messages in each thematic group were then selected for:

- Accuracy
- Representativeness of all messages in the group
- Strength from a theoretical perspective
  - Health Belief Model
  - Elaboration Likelihood Model
  - Framing of Actions

# PHASE 3

To discern the most persuasive staff message statements:

- **Semi-structured interviews**
  - 10 foreign-born Hispanic persons previously diagnosed with TB disease or latent TB infection
- **Four semi-structured focus group interviews**
  - 43 Hispanic persons who worked with, or sought services from, a community organization assisting migrant workers
  - No prior diagnosis of TB disease or LTBI

# RESULTS: PHASE 3

## The Focus of Selected Messages Statements

- Focus attention on obtaining a positive result

**Positive  
Action  
Framing**

- Address perceived susceptibility

**Health Belief  
Model**

- Encourage a person to evaluate the issue by drawing upon prior experiences and knowledge

**Elaboration  
Likelihood  
Model**

# RESULTS: PHASE 3

## EXAMPLES OF SELECTED MESSAGES: (1)

**Address  
perceived  
susceptibility**

*(Health Belief  
Model)*

- Even with the BCG vaccine, you can still inhale the TB germs, and become infected.

# RESULTS: PHASE 3

## EXAMPLES OF SELECTED MESSAGES: (2)

**Encourage a person to evaluate the issue by drawing upon prior experiences and knowledge**

*(Central Route, Elaboration Likelihood Model)*

- If the BCG vaccine provided lifetime protection, there would be very few cases of TB now.

# RESULTS: PHASE 3

## EXAMPLES OF SELECTED MESSAGES: (3)

**Focus attention  
on obtaining a  
positive  
consequence**

*(Positive Action  
Framing)*

- If your tests show the TB germs are in your body, you need to be treated so you can stay healthy and keep those you love safe from TB.



## **CONSIDERATIONS: CONSTRUCTING EDUCATIONAL MESSAGES FROM PREFERRED STATEMENTS**

## Readability

- **Aims:**
- Grade Level 6-7
- Flesch Reading Ease  $\geq 70\%$  (fairly easy)

## Long vs. Short

- Descriptive / Informative / Context
  - Overwhelming / Complex
- Less-is-More
  - Unconvinced

## Positively Framed vs. Negatively Framed

- Positive words, terms, phrases
- Negative words, terms, phrases

## Gain Framed vs. Loss Framed

- Advantages of adherence
- Disadvantages / consequences of non-adherence

# WHY CONSIDER MESSAGE FRAMING?

Framing can lead to different decisions and behaviors



**Get the best care available and stay healthy.**

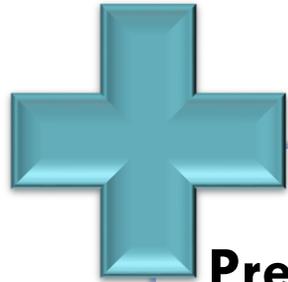
**Take the LTBI treatment.**

**Don't get sick with a disease that can kill you.**

**Take the LTBI treatment.**



# FRAMING HEALTH INFORMATION



**Prevention-oriented**  
better promoted by  
**positively-framed**  
**messages**

- LTBI Treatment

**Detection-oriented**  
better promoted by  
**negatively-framed**  
**messages**

- Testing for TB  
Infection

Rothman, A. J., & Salovey, P. (1997). Shaping perceptions to motivate healthy behavior: The role of message framing. *Psychological Bulletin*, 121, 3-19.

**Long  
Comprehensive  
Message “A”**

Statements earned most  
votes in each of the 5  
thematic groups

Both Positively  
and Negatively Framed  
Statements

**Short Message “B”**  
Primarily Negatively  
Framed

**Short Message “C”**  
Primarily Positively  
Framed

**Short Message “D”**  
Both Positively  
and Negatively  
Framed Statements



# THE FEEDBACK

# PHASE 4 RESPONDENTS

Recruited through a community-based organization serving migrant workers

(N=8)	
<b>No prior diagnosis of TB or LTBI</b>	100% (n=8)
<b>Vaccinated with BCG as a Child</b>	Yes: 75% (n=6) No: 13% (n=1) Unsure: 13% (n=1)
<b>Gender</b>	Male: 25% ( n=2) Female: 75% (n=6)
<b>Age Range</b>	27-56 yrs Average: 35.9 yrs
<b>≤ 6<sup>th</sup> Grade Education</b>	38 % (n=3)
<b>Resided in U.S. &gt; 5 yrs</b>	75 % (n=6)
<b>Countries of Birth</b>	75% (n=6) Mexico 13% (n=1) Honduras 13% (n=1) U.S. *

# LONG COMPREHENSIVE MESSAGE "A"

- 13 Sentences
- Presented as 6 message statements
- Each statement read & discussed during interviews ... investigators examined concepts reflected in participant responses

Flesch-Kincaid Grade level:  
6.55

Gunning Fog Index:  
7.66

Flesch-Kincaid Reading Ease  
score: 74.99  
"Fairly easy"

Fernandez-Huerta score  
93 "Very Easy"



## Long Message “A”

1. BCG is used in countries where many people are sick with tuberculosis (TB). Small children have an immature immune system. **Because they may be exposed to persons with TB, the vaccine is given to babies and small children.**
2. **Many people think the BCG vaccine will protect them from TB for their entire life. However, the vaccine does not always prevent tuberculosis.**
3. If a person breathes in TB germs, the vaccine helps lower the chance a person will develop severe forms of TB or die from TB. So, people who have had the BCG vaccine can still get sick with TB.
4. We have tested other people from your country who were given the vaccine; their tests were negative. This shows that **a positive test is probably the result of contact with a person sick with TB disease, and not from the vaccine.**
5. Do not take a chance with your health. **If the tests show the TB germs are in your body, take the treatment, because TB can kill you.**
6. With no treatment, you can get sick and spread TB germs to your family and friends. **Get treated, stay healthy, and keep those you love safe from TB.**

\* 50% or more of participants reiterated the statements in bold, black font

## Long Message “A”

1. BCG is used in countries where many people are sick with tuberculosis (TB). Small children have an immature immune system. **Because they may be exposed to persons with TB, the vaccine is given to babies and small children.**
2. **Many people think the BCG vaccine will protect them from TB for their entire life. However, the vaccine does not always prevent tuberculosis.**
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5. Do not take a chance with your health. **If the tests show the TB germs are in your body, take the treatment, because TB can kill you.**
6. With no treatment, you can get sick and spread TB germs to your family and friends. **Get treated, stay healthy, and keep those you love safe from TB.**

The Benefit  
& Action

Acknowledge  
Misperception

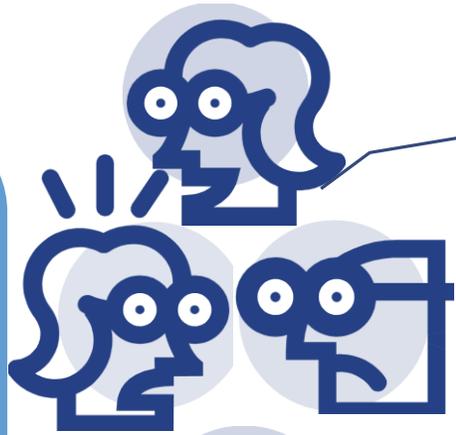
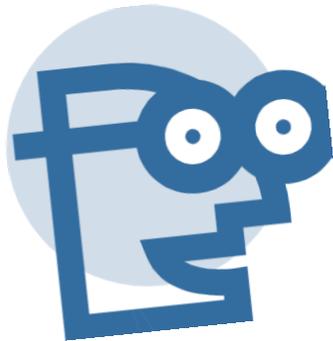
Drawbacks

Quantify Risk

Remain  
Credible

Personalize  
Benefit,  
Repeat &  
Specify Action

When asked to report their thoughts as they listened to Message A...



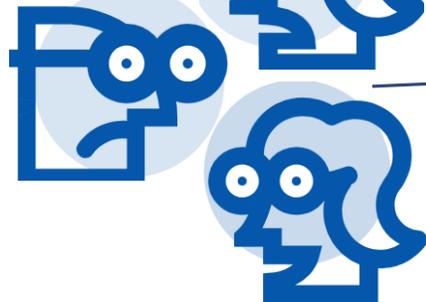
Half of the participants indicated they contemplated their own, or family member's susceptibility to TB.



Others discussed increased perceptions of disease severity.



Some expressed the belief that when they immigrated to the US they had left the problem of TB behind in their country of birth.

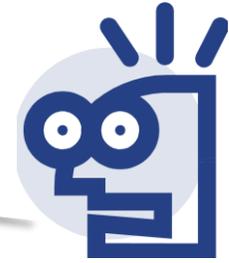


What information needs to be clarified?

What information should be added?



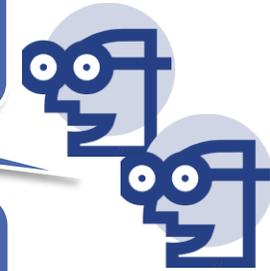
Define “immature immune system”



Explain whether a person with LTBI could infect others



Explain how TB germs get in the air



Explain who is at greater risk for becoming sick with TB disease



Explain the difference between the vaccine and the test \*\*\*

When invited to state what they liked best about the messages, participants indicated.....



- (1) The explanation that the vaccine lowers a person's chance of developing severe forms of TB if the germs are inhaled
- (2) The advice that a person not take a chance with their health
- (3) The encouragement to take treatment to protect loved ones



Each statement read & discussed during individual interviews.

Participants asked to select the message they liked best.

- 1 liked B
- 3 liked C
- 3 liked D
- 1 liked D, but reported they better understood C

Selected messages were discussed further.

**Short Message “B”**  
Primarily Negatively Framed

**Short Message “C”**  
Primarily Positively Framed  
Lowest Literacy Demand

**Short Message “D”**  
Both Positively and Negatively Framed



# ENGLISH VERSION MESSAGE C: POSITIVE / GAIN FRAMED

(Text in English)

**Gunning Fog index:** 6.95  
Years of formal education  
needed

**Flesch Kincaid Grade Level:**  
5.86

**Flesch Reading Ease:** 77.52

**Fernandez-Huerta Reading  
Ease (Spanish):** 100

We still have a lot of TB disease in the world. Most of the TB is found in countries that use the BCG vaccine.

If the vaccine protected a person for life, tuberculosis would not be a problem in the world.

“Knowledge is power,” and we can protect ourselves from disease.

Knowing the protection from the vaccine wears off, it is important to be tested for TB. Find out if TB germs are in your body, and if you need medicine.

If your tests show TB germs are in your body, you need to be treated.

Treatment will help you stay healthy and keep those you love safe from TB.

# “TAKE HOME LESSONS” (1)

Positive and gain framed messages

Illustrate personal susceptibility

- How people are infected (we all breathe)
- Who is at higher risk for infection and disease

Encourage evaluation based on prior knowledge

- If the BCG vaccine worked perfectly – no one would have TB

# “TAKE HOME LESSONS” (2)

Check for cognitive dissonance

- Ask patients to repeat information back in their own words
- Invite patients to talk about what the provided information means to them

# “TAKE HOME LESSONS” (3)

Explain the differences between the BCG vaccine and the TST test

- Placing a TST is not a treatment or re-vaccination

Be mindful of the literacy demand

Use the systematic process for health education

- Needs assessment → Develop → Pilot test → Implement → Assess

**THANK YOU**

